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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,219	12/27/2001	Wing-Chi Chow	M-12299 US	7386

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EXAMINER

NATNAEL, PAULO S M

ART UNIT PAPER NUMBER

2614

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,219

Applicant(s)

CHOW, WING-CHI

Examiner

Paulos M. Natnael

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 52-64 is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Malkin et al., U.S. Pat. No. 6,614,474 in view of Alm et al. U.S. Pat. Application No. 2004/0028292 A1.

Considering claim 1, Malkin et al. (hereinafter "Malkin") teaches an electronic video camera with adaptive edge sharpening filter for enhancing a digital image comprised of pixels by adaptively sharpening the pixels and clipping the numerical values of the sharpened edge pixels so as to fall between the smallest unsharpened numerical value and the greatest unsharpened numerical value, respectively, of the pixels located within a neighborhood of the pixels. Pixels that are located on an edge are sharpened in the direction perpendicular to the edge. (see abstract) Malkin discloses a scaler 200 for downscaling fields/frames of video data, Sharpening filter 300 comprising edge detector 320 for detecting the slope of each pixel of the downscaled video (see steps 310-320 in fig. 4)

Malkin does not specifically disclose down-scaling in the horizontal direction while maintaining the scaling in the vertical direction. However, such methods of

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scaling are well known in the art of television or video production or in the computer art where any size of windows can be made by downscaling one and maintaining the other direction. That is, it would be obvious to scale a video image in one direction and maintain the scale on the other in order to make or fit a desired size of the image on a particular screen or sub-screen. In that regard, Alm et al. discloses "The peripheral scaling areas 102, 103, 104, 105 of the image is then downscaled in relation to the first scaling area. The downscaling of the peripheral area 101 is preferably performed by downscaling the second scaling area 102, the third scaling area 103, the fourth scaling area 104, and the fifth scaling area 105. The second and the third scaling areas 102, 103 are only down scaled in the vertical direction, thus maintaining the size in the horizontal direction, and the fourth and fifth scaling areas 104, 105 are only downscaled in the horizontal direction, thus maintaining the size in the vertical direction. Further, the scaling areas 102, 103, 104, 105, of the peripheral scaling area is arranged so that the second scaling area 102 is overlapping the fourth 104 and the fifth 105 scaling areas, thus the areas of overlap 116, 119, is scaled in both the horizontal direction and the vertical direction. The same applies to the third scaling area 103 which also is overlapping the fourth 104 and the fifth 105 scaling areas." (see Para. [0045] on pg.3) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Malkin by providing the teachings of Alm et al. in order to construct or fit a desired size of an image on a particular screen or a sub-screen such as an On-Screen Display which could very small indeed.

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Considering claims **2-4**, it is noted that the "CIF" format represents a progressively scanned format and therefore, by definition, comprises odd and even fields and/or lines.

Regarding claims **5** and **8**, the horizontal interpolator/decimator 240 (fig.2) averages up to 4 pixels from a line for each field pixel (i.e., wherein the "averaging" of pixel values constitutes, by definition, low pass filtering).

Concerning claims **6,7,9** and **10**, the Vertical interpolator/decimator 270 (fig.2) averages up to 4 sets of horizontally averaged pixels from successive lines for each field pixel (i.e., wherein the "averaging" of pixel values constitutes, by definition, low pass filtering).

Concerning claims **11** and **12**, the edge detecting process performed by high-pass filtering elements 315-330 comprises a high-pass filtering operation for detecting "edges" wherein the filtered output is compared to a predetermined threshold at 335.

Considering claim **13**, Malkin et al. discloses a system that comprising a plurality of downscale circuits 220, 230 in fig.1 for downscaling fields/frames of video data, and a plurality of edge detecting circuits 320, fig.4, each of which provides a respective one of the four outputs to selector 330.

As to the newly added limitations, see rejection of claim 1 above.

Regarding claims **14-16**, see rejection of claims 2-4.

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Regarding claims **17** and **20**, see rejection of claims 5 and 8.

Regarding claims **18**, **19,21**, and **22**, see rejection of claims 6,7,9 and 10.

Regarding claims **23** and **24**, see rejection of claims 11 and 12.

Considering claim 25, Malkin et al. discloses each of the signals a1,a2,a3,b1,b2,b3, c1,c2, c3 that is shown in 315 of fig. 4 represents a respective set of downscaled field pixels, wherein there is at least a first, second and third set; and, the edge detecting circuitry 320 and 330 detects a maximum slope for the pixel location under consideration using said sets of downscaled field pixels.

As to the newly added limitation, see rejection of claim 1 above.

Regarding claims 26 and 27, the examiner notes each scaled set of pixels comprises a set of pixels surrounding the pixel location being processed.

Regarding claims 28-33, see rejection of claims 5 and 8.

As to claims **34** and **35**, see rejection of claims 11 and 12.

Regarding claims **36-38**, Malkin teaches "The imager chip includes a plurality of photosensitive areas (that is, picture elements or "pixels") arranged as a two-dimensional array which is scanned either interlaced or progressively, as is known in the art...Imager sections and imager chips of this type are well known in the art." see col. 1, 23-30

Considering claim 39, see rejection of claims 1,5 and 8;

As to claims 40, see rejection of claims **36-38**.

As to claims 41-51, see rejection of claims 2-12, respectively.

Response to Arguments

3. Applicant's arguments filed 3/03/05 have been fully considered but they are not persuasive. Applicant argues that Malkin et al.

Thus, the device of Malkin et al. "downscales a first field of video in both the horizontal and vertical directions, with the result being a new, second field of data. It is then the pixels of this second field that are subjected to the Edge Detector/sharpener of Sharpening Filter 300, consequently, the edge detection and determination of Sharpening Filter 300 is not for a field pixel of the original, first field of pixels, but rather for the pixels of this second, scaled down field. This is believed to be quite distinct from the aspects of the present invention to which the pending claims are drawn. More specifically, as described beginning at paragraph (0020) and other portions of the present application, a principle aspect of the present invention downscales field pixels in only the horizontal direction; that is, it downscales the pixels of a first field of pixels of video data in the horizontal direction, but while maintaining the scaling in vertical direction. This is done to more accurately detect the slope of pixels in the same first field of pixels; that is, a particular field of video data is downscaled, but only in the horizontal direction, to more accurately determine slopes within the same field of data.

The examiner submits scaling in one direction and maintaining the scale on the other direction unchanged is well known in the art as shown in the rejection above. In this case the system of Malkin would have been obvious to the skilled in the art to modify so that the 640x480 input Y/C video would be scaled to any desired size such as 640x288 maintaining thus the vertical direction in the output instead of 352x280. see also rejection of claim 1.

Allowable Subject Matter

4. Claims **52-64** are allowable over the prior art.
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose the combination of the limitations of claim 52 comprising, a plurality of downscale circuits, plurality of edge detector circuits, a field pixel slope determinator coupled to receive the output of the plurality of edge detection circuits, an interpolated pixel slope determinator, and an interpolated pixel generator coupled to receive the interpolated pixel slope and generate an interpolated pixel based thereupon.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

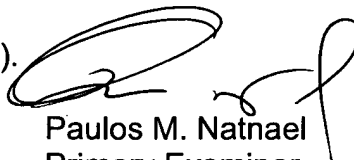
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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (571) 272-7354. The examiner can normally be reached on 10:00am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571)272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Paulos M. Natnael
Primary Examiner
Art Unit 2614

PMN 
November 2, 2005